SHARP FOCUS

The Australian Magazine for SHARP Users

Issue No. 8 - February 1986 -

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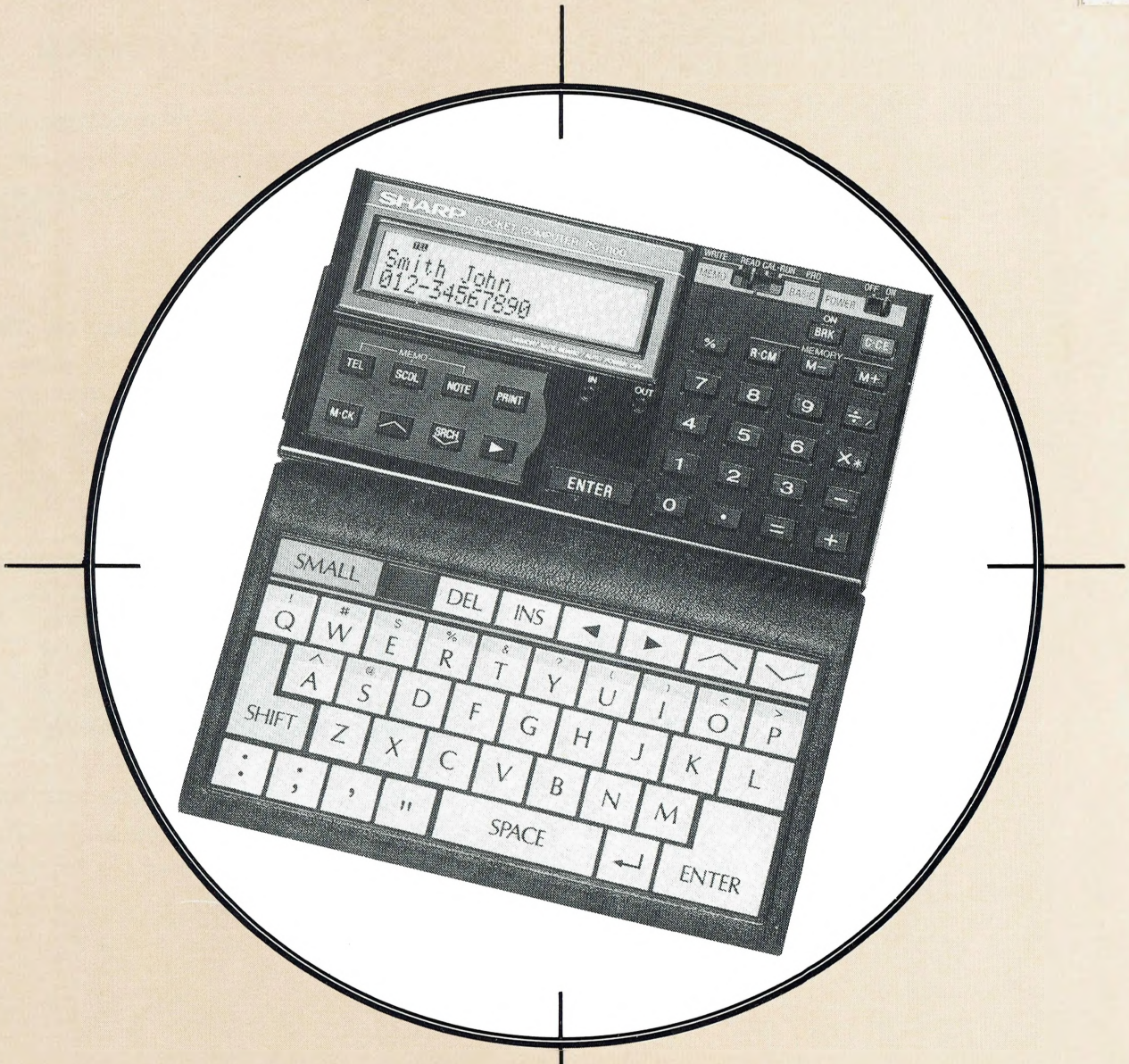

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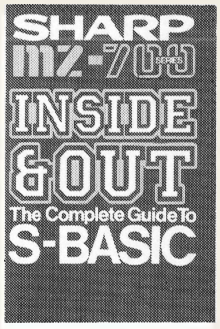

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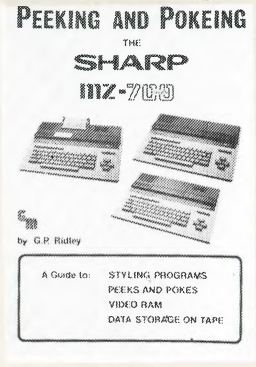

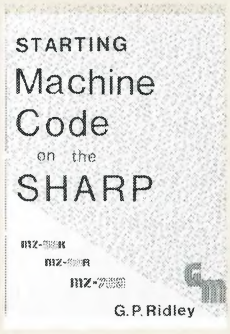

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which again fa
cycle which I suggested in N
holds?

Ed

MEMORANDUM

To: SHARP FOCUS READERS **Date:** February 1986

From: The Editor

Subject: EDITORIAL

First, a 'Thank-you' to those people who wrote to offer their services on our software review panel. I now have plenty from which to choose and will make a decision soon and notify all concerned.

Secondly, as you read this magazine "The Big Move" is probably well under way. No, Sharp are not moving into the mainframe business - Sharp Focus, that is Strategy Publications, is moving into larger premises above the existing one. Our address is much the same with just Shop 2 becoming Suite 1. So if you are looking for our usual prompt service, it is unlikely that you will get it between the 6th and 12th of February.

Thirdly, I was surprised to learn of the existence of a couple of user groups the other day. Perhaps I should re-phrase that by saying I am sure there are many User Groups throughout the country, but I am surprised they keep so quiet. This office often receives enquiries from Sharp computer owners wanting information about groups in their area. Sadly, we regularly sentence these enquirers to a lone battle against the problema novicius. Don't be shy - if you want free publicity for your group, just send me the details.

Finally, a quick glance at the articles in this month's magazine reveals the release of a new pocket, the PC-1100, which again falls into Sharp's apparent bi-monthly release cycle which I suggested in November '85. I wonder what April holds?

Ed

MEMORANDUM

To: SHARP FOCUS READERS **Date:** February 1986

Letters

All letters should be addressed to:
The Editor,
Sharp Focus, Suite 1,
33 The Centreway,
Mt. Waverley,
Vic. 3149

I have often been asked by newcomers to computing, how the contents of the screen might be dumped to a printer. My reply that a program was needed was usually received with disbelief. The machine code routine below for the MZ-700 gives the facility for outputting the screen to printer without adding anything to the screen and without scrolling no matter where the cursor is located.

Once more I have located the program in the free area within Basic - the actual address being decided by other routines also occupying this area. However, it is totally relocatable - just change the POKE address in line 20 and the POKE data in line 30 to match. CONTROL B will now initiate hard copy printing of the screen.

Why CONTROL B? Well, I was already using A, C and D for other purposes so why not?

```
10 'PROGRAM TO GIVE
   SCREEN PRINT VIA
   CONTROL B
20 POKE $2CE5,$11,$0,$D0,
   $3E,$19,$4F,$D,$3E,$28,
   $47,$D3,$E3,$1A,$D3,
   $E1,$CD,$B6,$4,$CD,$7E,
   $16,$13,$5,$78,$B7,$20,
   $EF,$B1,$F5,$3E,$D,$CD,
   $7E,$16,$F1,$20,$E1,$C9
30  POKE $6B,$E5,$2C
```

John Bedson, Kiama Hts., NSW

I have checked and rechecked the program 'TEXT EDITOR for the PC1500' (Jan Sharp Focus) and I can see several mistakes. Firstly, no mention is made of what k-RAM is to be used. It won't work on 4k - this bring up an error 10. So I have tried a 16k RAM with no luck as I get an error in line 8057.

So could you please give me a corrected listing of the program. The other errors are:

line 8150: what is Z+1?

line 8820: z=ASC INKEY$ - a small z has been used.

lines 8380 and 8390: the word CONSOLE breaks into CON SOLE.

This would be a very useful program if one could get it to work.

D.H. Thomas, Five Dock, NSW

Taking your points one at a time:

1. The program is obviously too large for 4k, but runs successfully in 8k and above.

2. Line 8150: should start Z=1.

3. Line 8820: z=ASC should read Z=ASC.

4. The CONSOLE command is recognised only by an RS232 interface which must be used if the printing device is anything other than a CE-150 (printer/plotter). If you are using a CE-150, we suggest you delete the lines relating to the RS232 including 8380 through to 8415 inclusive and remove the references to 8380 and 8390 from line 8885. We haven't tried it, but it looks as though it should work.

The type-setting errors in 2 and 3 above illustrate the need for submissions to be sent on tape (a working version for us to test and from which to print a final copy for publication) as well as a hard copy listing. Nevertheless, it doesn't excuse mistakes - sorry!

Through Sharp Focus I would like to ask if any readers would know of test routines which could be run on the following pocket computers:

PC-1246 and PC1251

in conjunction with the CE-125 printer/cassette unit.

Similarly, utility type routines, if known or possible, would be of interest.

R. Brockhouse, W. Richmond, SA

FROM THE MAILBAG

As a 'lone hand', it is difficult to know whether the following ideas might be useful to others, or whether they are very common knowledge - they are certainly simple.

1. Entering a listing of a series of lines of fair similarity may be speeded by entering the line completely, then merely returning the cursor to alter that line number to the next number required, repeating as many times as necessary.

```
10 IF A=B THEN GOSUB
   100:GOSUB 200
20 IF A=C THEN GOSUB
   100:GOSUB 300
30 ....
40 .... etc
```

Alter 10 to 20 CR, 20 to 30 CR and so on. The minor amendments may then be made on a full screen listing.

2. When experimenting with a program, by renumbering certain lines out of reach of the program, they may be recalled intact if later required.

3. In graphic mode, by depressing the 'Control' key while using cursor keys, normal Alpha mode cursor movement applies. Also 'INST' and 'DEL'.

4. DEFKEYs may be altered when entering long listings where certain keywords are used frequently, eg. GOSUB, CURSOR. This is also useful where responses to program queries are repeated, eg. adventure games 'Go North', 'Go South' etc. Add DEFKEY at the start of the program.

5. The attached listing enables the movement of a four character cluster, Table/2 object on the screen, with the colour as required. Screen position 'X' here is varied by the 'GET loop' 30-80 but of course could be varied by any function.

Neil Fitzpatrick, Pengiun, Tas

```
10 REM *** POKE MOVING SHAPES FROM
 2ND TABLE *** WITH OFFSCREEN LIMI
TS
20 REM INCREASE SPEED BY ELIMINATI
NG GOSUBS, REMS, SCREEN LIMITS IF
POSSIBLE, X=X+3, ETC.
30 COLOR,,7,1: CLS
40 POKE 89,240
50 FOR I = 0 TO 24:CURSOR 0,I:PRIN
T" ";TAB(39);" ";:NEXT I
60 REM *** $71 & $72 ASCII OR 209
&210 PEEK AND POKE ***
70 X=53506:GOSUB 140: REM *** X ST
ART POSITION IMPORTANT IF X=X+3 ET
C> OR CHANGE SCREEN LIMIT CHECK
80 GET A$:Q=X
90 IF A$="[]" THEN X=X-80 :GOSUB 21
0:GOSUB 140
100 IF A$="[]" THEN X=X+80 :GOSUB 2
10:GOSUB 140
110 IF A$="[]" THEN X=X+1 :GOSUB 21
0:GOSUB 140
120 IF A$="[]" THEN X=X-1 :GOSUB 21
0:GOSUB 140
130 GOTO 80
140 REM *** MOVE OBJECT AND COLOUR
 ***
150 C=X+$800
160 POKE C,241,241
170 POKE C+40,225,241
180 POKE X,234,235
190 POKEX+40,236,237
200 RETURN
210 REM *** CANCEL PREVIOUS OBJECT
 & CHECK SCREEN LIMITS (TABLE/2 CO
LOUR NOT CANCELED SO ALL SCREEN PO
KES WILL TABLE 2) ***
220 POKE Q,0,0
230 POKE Q+40,0,0
240 IF PEEK(X+1)=209 THEN X=X-1
250 IF PEEK(X )=210 THEN X=X+1
260 IF X <53287 THEN X=X+80
270 IF X >54208 THEN X=X-80
280 RETURN
290 REM *** ALTERNATIVE SCREEN LIM
IT CHECKS
300 IF INT((X-53247)/40)=(X-53247)
/40 THEN X=X-1
310 IF INT((X-53248)/40)=(X-53248)
/40 THEN X=X+1
```

Pixel Magic

by Garth Rymer

Well, for all you 1251 owners who felt special screen effects were only for the 1500 and 1350 boys (or girls) have we got a surprise for you!

The latest PC1251 manual has some very valuable information omitted from earlier versions on creating special effects on the screen display.

Just so you are all aware, there are many other useful changes in the new manual as well, and the pages which differ between the 1982 and the 1983 Instruction Manual are:

Pages 134, 155, 169, 170,171 and 172

and the pages which have been added under the heading "reference" are:

Pages 218, 219, 220, 221, 222, 223, 224, 225, 226, 227 and 228.

These changes and additions are a must for every PC1251 owner so be sure to update your Instruction Manual.

Let's look at the two key features of the screen control section under the "reference" heading in the updated Instruction Manual.

Firstly, turning the LCD display on and off.

The PC1251 is designed so the display remains off while in program execution. This is awkward when the INKEY$ command is used as the LCD display will go blank until the next command is executed.

Try this program if you wish the display to remain on during $INKEY command:-

```
10  WAIT 0
20  PRINT "OK?(Y/N)"
30  CALL &11E0 (LCD
    display on command)
40  A$ = INKEY$
50  IF A$ THEN 70
60  GOTO 40
70  IF A$ = "Y" PAUSE
    "YES" : GOTO 20
80  IF A$ = "N" PAUSE
    "NO" : GOTO 20
90   GOTO 20
100 END
```

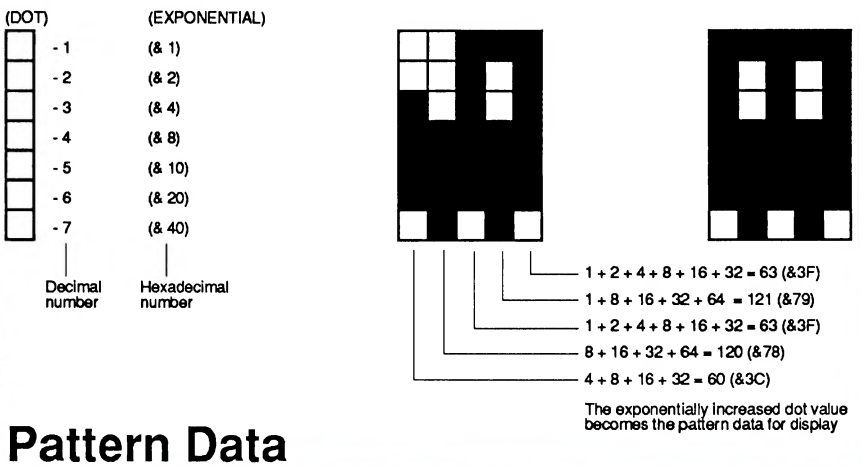
The LCD can be turned on and off with the following:-

LCD display on command
CALL &11E0
where the '&' represents a hexadecimal number follows).

LCD display off command
CALL & 11E5
Clear display memory
PRINT""

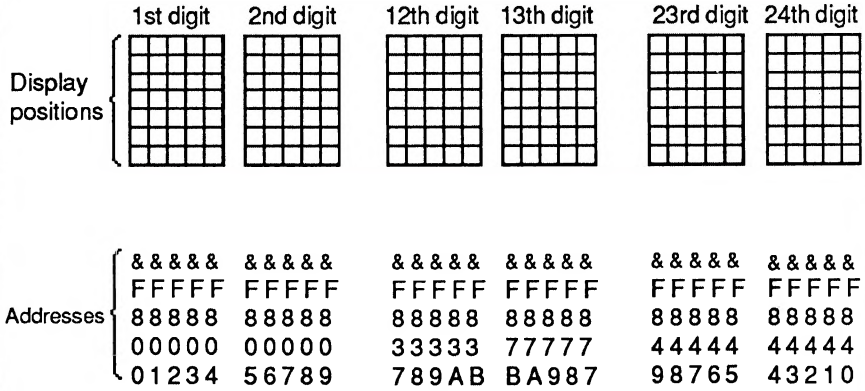
Now let us look at ways to put graphics characters on the PC1251 screen.

The PC1251 display has a maximum of 24 display digits, each


(DOT)
(EXPONENTIAL)
- 1
- 2
- 3
- 4
- 5
- 6
- 7
(& 1)
(& 2)
(& 4)
(& 8)
(& 10)
(& 20)
(& 40)
Decimal number
Hexadecimal number
1 + 2 + 4 + 8 + 16 + 32 = 63 (&3F)
1 + 8 + 16 + 32 + 64 = 121 (&79)
1 + 2 + 4 + 8 + 16 + 32 = 63 (&3F)
8 + 16 + 32 + 64 = 120 (&78)
4 + 8 + 16 + 32 = 60 (&3C)
The exponentially increased dot value becomes the pattern data for display

Pattern Data

Address



The addresses are predetermined as shown in the figures above. Be aware that the address composition in the left 12 digits and that in the right 12 digits must be set from opposite directions. In other words, addresses in the 12 left digits are set in the left-to-right direction and those in the 12 right digits in the right-to-left direction. Therefore, even when the identical patterns are displayed, the pattern data designating the sequence must be reversed by executing the POKE statement when they are displayed either to the left or to the right digit.

Addresses at the left and right ends of each digit

Digit	Left end	Right end
1	&F800	&F804
2	&F805	&F809
3	&F80A	&F80E
4	&F80F	&F813
5	&F814	&F818
6	&F819	&F81D
7	&F81E	&F822
8	&F823	&F827
9	&F828	&F82C
10	&F82D	&F831
11	&F832	&F836
12	&F837	&F83B
13	&F87B	&F877
14	&F876	&F872
15	&F871	&F86D
16	&F86C	&F868
17	&F867	&F863
18	&F862	&F85E
19	&F85D	&F859
20	&F858	&F854
21	&F853	&F84F
22	&F84E	&F84A
23	&F849	&F845
24	&F844	&F840

consisting of 5 X 7 dots. It also has a display memory for storage of patterns composed ofdots. Any desired pattern can be written in this memory using the command below to create a graphic display:

Pa, Pd, Pd .....

where Pa is the initial position where the pattern display starts and Pd represents a specific pattern in one column of the dot display.

This can be seen in the following program which displays the symbol " ■■ " at the left end:

```
10  WAIT 0: PRINT " "
20  CALL &11E0
30  POKE &F800, 60, 120,
    63, 121, 63
40  POKE &F805, 63, 121,
    63, 121, 63
50  GOTO 30
60  END
```

You may find it useful, as I have, to makeup a one page sheet for use in designing graphic displays for the PC1251 consisting of the three diagrams in this article.

Try this program for some fun with a car and an arrow pointing to the right.

```
10:WAIT 0: PRINT " "
20:CALL &11E0
30:POKE &F800,48,120,52
   ,124,48
40:POKE &F805,8,8,42,28
   ,8
50:POKE &F80A,48,120,52
   ,124,48
60:POKE &F80F,8,8,42,28
   ,8
70:POKE &F814,48,120,52
   ,124,48
80:POKE &F819,8,8,42,28
   ,8
90:POKE &F81E,48,120,52
   ,124,48
100:POKE &F823,8,8,42,28
   ,8
110:POKE &F828,48,120,52
   ,124,48
120:POKE &F82D,8,8,42,28
   ,8
130:POKE &F832,48,120,52
   ,124,48
140:POKE &F837,8,8,42,28
   ,8
150:POKE &F877,48,124,52
   ,120,48
160:POKE &F872,8,28,42,8
   ,8
170:POKE &F86D,48,124,52
   ,120,48
180:POKE &F868,8,28,42,8
   ,8
190:POKE &F863,48,124,52
   ,120,48
200:POKE &F85E,8,28,42,8
   ,8
210:POKE &F859,48,124,52
   ,120,48
220:POKE &F854,8,28,42,8
   ,8
230:POKE &F84F,48,124,52
   ,120,48
240:POKE &F84A,8,28,42,8
   ,8
250:POKE &F845,48,124,52
   ,120,48
```

```
260:POKE &F840,8,28,42,8
    ,8
270:GOTO 10
300:END
```

Now try this short program and see if you can display what these patterns represent. Do you see a bird, a dolphin, a deer, a turtle, and a christmas tree?

```
400:WAIT 0: PRINT " "
410:CALL &11E0
420:POKE &F800,8,12,63,4
    7,2
430:POKE &F805,60,24,60,
    24,16
440:POKE &F80A,8,120,94,
    127,69
445:POKE &F80F,40,58,127
    ,58,40
447:POKE &F814,16,92,127
    ,92,16
450:GOTO 420
460:END
```

Now try your own designs using the pattern developer sheet which I suggested earlier.

Good luck and see you next month with more information on the PC1251.

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SHARP POINTS

CE-129P PRINTER AND CASSETTE INTERFACE

This printer and cassette interface is now available for the PC-1401 and PC-1421 pocket computers.
The unit features a 24-character wide thermal printer, plus cassette interface with remote control facilities. It is designed so that the PC-1401 or PC-1421 slides into a cradle, thus forming a single unit containing computer, printer and cassette interface.
The CE-129P comes complete with a protective carry-case with space for cassette leads and spare paper rolls.

The recommended retail price (including tax) is $170.00.

POCKET COMPUTER RAMCARDS

Two new RAM cards are available for the PC1450. They are also suitable for use with the new PC-1100.
The CE-211M provides 4k of RAM for low-cost flexibility in changing programs, whilst the CE212M provides 8k of RAM for use with more sophisticated programs.
Both cards measure 54mm x 41mm and are designed to fit into the compartment on the underside of the computer. A battery in the RAM cards ensures that programs and data are retained when the card is removed from the computer, thus enabling the user to build up their own library of software.

The recommended retail prices (including tax) are:
CE-211M 4k RAMCARD - $70.00
CE-212M 8k RAMCARD - $100.00

CE-140P COLOUR PRINTER

This new unit (the subject of a review in next month's Sharp Focus) allows the PC-1350 or PC-1450 to print and draw in seven different colours.
It is designed so that either computer can slide into a cradle, thereby providing a single integrated unit. The printer uses continuous roll paper of 114mm wide, giving large, easy-to-read printouts of programs, data and charts. The unit comes complete with a protective case, thus providing a handy means of protecting the complete system.

The recommended retail price (including tax) is $350.00.

SHARP POINTS

Review of the new PC-1100

by David Saunders

Is it a telephone directory?
Is it a pocket diary?
Is it a note pad?
Is it a calculator?
Is it a computer?

Sharp's latest pocket computer is, in fact, all of the above. The PC-1100, a very elegantly-designed machine, combines all of the above functions into a true shirt pocket sized combination. And it has a few surprises - some good, some bad - packed away into its closed size of 136mm x 78mm x 12.8mm.

Firstly, to understand why the word "CLOSED" was used before, a physical description of the machine is necessary. Rather than having a hard cover which slides across the keyboard, the PC-1100 has a hinged flap which closes over it when the machine is not in use.

Now here comes the first good surprise! All of the alphabetical keys, punctuation mark keys, SMALL (lower case) key, cursor left and right keys, scroll up and down keys and the SPACE key are on a tough pad arrangement built onto that flap. With a very good non-slip backing, the keyboard is large and solid enough for even the most ham-fisted operator! The thickness of the flap would be no more than 2mm so quite a lot of functional use is packed into its very small volume.

So what is left on the keyboard which the flap covers? In the top left corner is the LCD display which is sixteen characters long and two lines deep giving a display possibility of thirty-two characters. All very legible with a bonus contrast control adjustment knob on the R.H.S. of the machine.

The top right corner of the keyboard houses the MODE selection switch and the power OFF/ON switch. Just below the power switch is the BRK key for stopping a program in mid-execution. That key also serves as the ON key should the machine switch itself off after ten minutes of non-use. (That Auto Power Off is a very good battery-saving function). Alongside that key is the C.CE key which is used for clearing the display or for clearing any error signals. The balance of the R.H.S. of the keyboard is occupied by the numerical keys; the arithmetic operator keys (+, -, x, +); the percentage key and the three keys used for using memory calculations. So that part of the keyboard forms the basis of the simplest memory-type calculator and its operation does not justify space in this review.

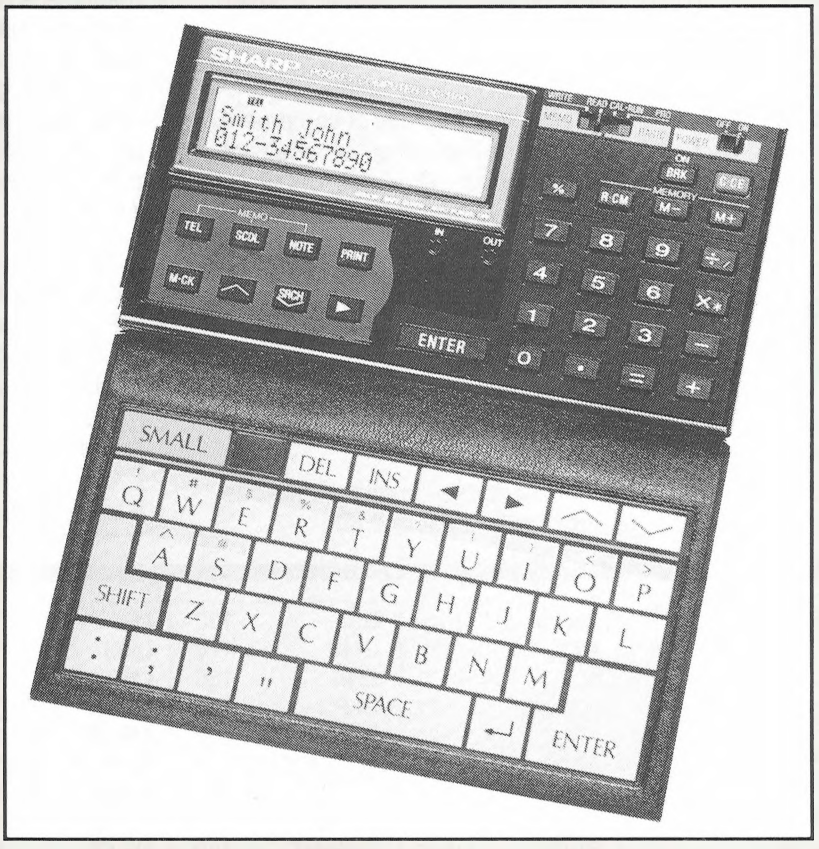
Beneath the display, the word "memo" is printed with lines going to three buttons which, from the left, are labelled TED, SCDL and NOTE. In combination with the previously mentioned mode set to the MEMO side, these keys place the machine into what SHARP choose to call the "telephone", "schedule" or "note" mode.

I won't detail the actual key operations which achieve the results - the manual does that quite well - but shall describe the results.

The telephone memo mode is the first to be studied. This accepts names and corresponding numbers. Each of these can be up to eighty characters in length. Because of that it becomes obvious the entries can carry more information than just a name. The manual makes a few suggestions here - the person's role in company; the time to ring that person; the time that company is open - but overlooks the possibility of including addresses. Many Australian names and addresses will fit quite comfortably, with abbreviations if necessary, into eighty characters. A really big good surprise is that the machine automatically arranges the entries into alphabetical order! It is then possible to find an entry by scanning through each one or by just entering the first few letters of the desired entry. In the second case the machine displays immediately the selected entry. If there is more data in the entry than

can be displayed on the screen, a screen annunciator arrow signifies that fact and the information can be scrolled left or right.

The calling of the mode "telephone" to me is quite ridiculous. It limits the uses of that mode within the operator's mind. It could be used, for example, by a salesman to list his products with their corresponding prices. It could be used just to sort a list of part numbers into alphabetical sequence. It has far more uses than the name "telephone" implies and it is a great pity that Sharp do not point this out in the manual.



The next mode is the "schedule"one. This accepts the month by its numerical calendar position and the day of the month similarly. It then calls for a "comment" regarding that day and lists all entries made in sequential order, it thus forms a pocket diary. The comment can be up to eighty characters long which is very generous. More than one entry can be made for the same date. Similarly to the TEL mode all entries can be scrolled through to find a required date or that required date can be input and the machine lists the entry for that date. Very good and very simple to use. A feature I like is that when the date is displayed, it includes the letter "m" before the month number and the letter "d" before the day's number. There is therefore no possibility of confusing the 9th April with the 4th September. As the month input will not accept a number greater than twelve and the day input will not accept a number greater than thirty-one, I cannot conceive any secondary uses for this mode. It will accept dates such as 31st April so it is not 100% smart. I don't mean that as a criticism.

The next mode is "note" memo mode. If the "TEL" mode can be related to an alphabetical directory and the "SCDL" mode to a pocket diary, then the "note" mode is the equivalent of a scribbling block. Notes, again up to eighty characters long, can be entered and recalled in this mode but no sorting takes place. They reappear in the sequence that they were entered. Quite sensible. No gimmicks.

Now, in all of the above three modes, corrections and deletions can be quite simply made. Redundant telephone numbers can be deleted; entries for past dates can be deleted and notes that have been acted on can be deleted.

The next good surprise is the password feature. By setting a password, individual confidential entries can be protected by prefacing that entry with a question mark. Those without the question mark can be freely read by all and sundry but the protected ones can only be read by those who know the password. A very neat arrangement which applies to all of the modes. It is not difficult to use and would be a boon to those who do n't wish some or all of their memos to be public.

I am afraid that, as an engineering/ scientific type person, the bad surprises come when the machine is to be used as a computer. There are no trigonometric functions so the computer is useless for many mathematical computations. Arrays cannot be dimensioned so matrix-type calculations are out. It has logarithms and the exponential function, but no more. So, if you are a person to whom advanced mathematics is important, this machine is definitely not for you.

The manual admits that the programming language used is "simplified" BASIC and that is very true. The entire range of

commands follows:- CLEAR: END: FOR....TO....STEP: NEXT: GOSUB: RETURN: GOTO: IF....THEN: INPUT: LET: NEW: PASS: PRINT: RUN: USING: LLIST: LPRINT: CLOAD: CSAVE: INT

That doesn't look like much scope but it must be realised the market to which Sharp have aimed this machine. That market is everybody who wants a pocket diary, telephone book, memo pad, calculator, pocket computer and who is not interested in advanced mathematics. Such people would be accountants, lawyers, doctors, businessmen and a very large proportion of the general community. For them it is an admirable machine. It can run all sorts of computer programs related to such things as interest rates, mortgage values, time calculations, etc.

The machine comes with a 2k ram card. That is a little gizmo about half the size of a credit card and that slots easily into the back of the machine. That 2k restricts the number of entries that can be made or the size of program that can be written. But this little marvel will accept a 4k or an 8k ram card as optional extras. And, as the cards have their own little batteries, any information stored in them is retained even whilst out of the machine proper. That is a number one good surprise in such a small machine.

The other optional extra is the CE-126P printer and cassette interface. This piece of equipment allows the printing out of results of calculations, the printing out of memos of any of the three types and the printing out of any programs. It also allows any or all of those items to be recorded on audio cassette tape which then allows the ram card to be cleared and used for any other purpose. And very simply and elegantly done.

The serious user might have one ram card with permanent alphabetical type information - with a back-up on audio tape - another with diary entries and so on. Or, into 8k, that user might be able to fit a mix of all the modes. *[Since this review was written, we have confirmed that a Printer/micro cassette unit - the CE-125 is also available for the PC-1100 - Ed].*

As a scientific-type user, the machine is not for me and I feel that students should be aware of its mathematical shortcomings. But for that very large percentage of the community who do not need advanced mathematics, I would thoroughly recommend the PC-1100.

Current retail prices are:-
PC-1100 with 2k ram card - $180
CE-211M (4k ram card) - $70
CE-212M (8k ram card) - $100
CE-126P Printer/cassette interface - $140
CE-125 Printer/micro-cassette unit - $205

PC-2500 Index

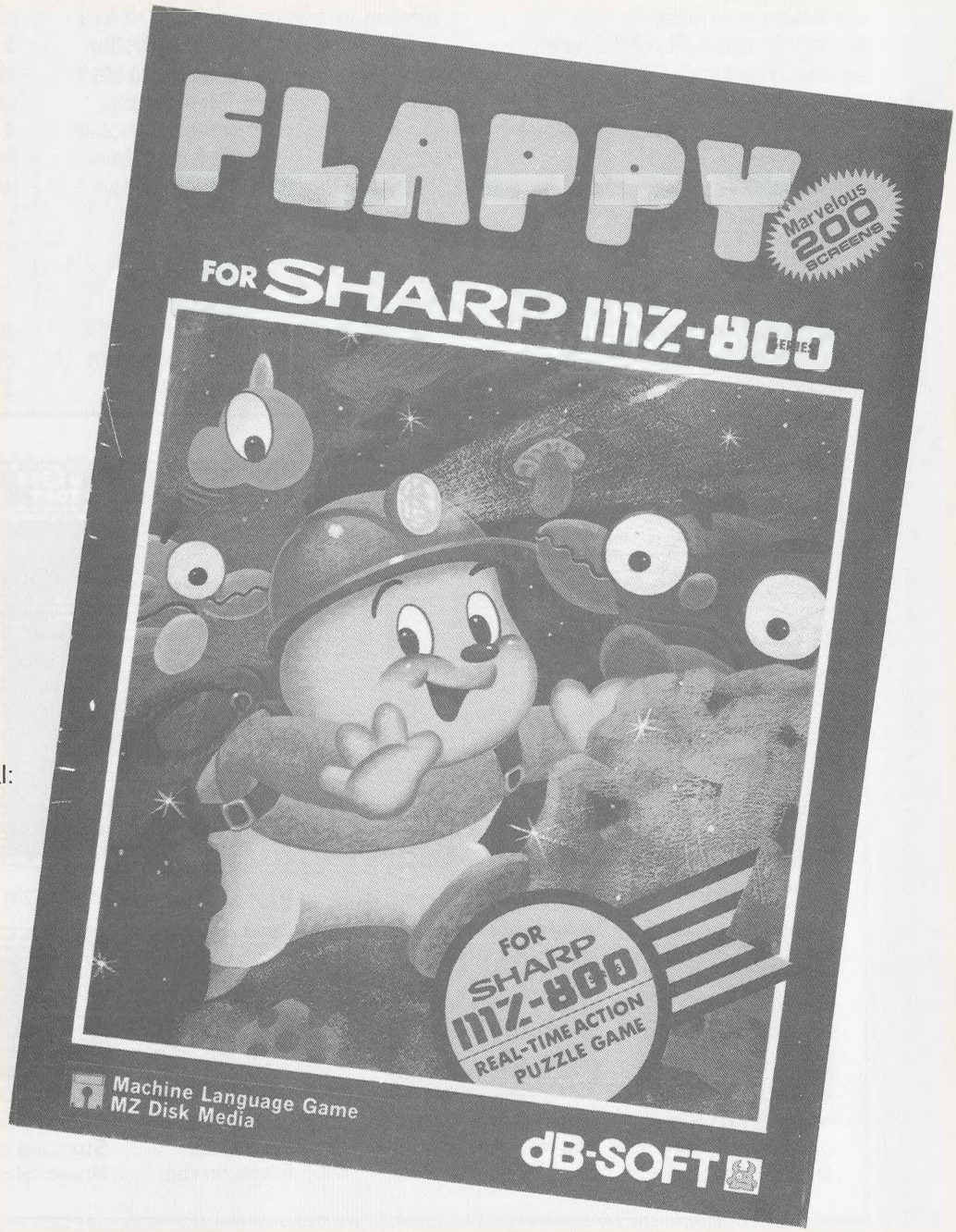
The PC-2500 portable computer has a wide range of Basic commands, all of which are well described in the Owner's Manual. Unfortunately, there is no alphabetical index, which can be frustrating when the syntax requirements for a particular command are required. For example, how quickly can you find out the correct usage of the PRINT# command?
The problem is now solved, thanks to the efforts of George Young of Philip Photographics in Canberra, who has compiled the following list of all the PC-2500 Basic keywords and the relevant page numbers from the Owner's Manual.

Name	*Page*	DIM	133	LOAD	198	READ	161
ABS	175	DMS	176	LOG	177	REM	162
ACS	175	END	135	LPRINT	148	RESTORE	163
AREAD	121	EXP	176	MEM	172	RETURN	164
ASC	179	FOR	136	MEM$	173	RIGHT$	180
ASN	175	GCURSOR	181	MERGE	114	RND	177
ATN	175	GOSUB	138	MID$	180	RUN	119
BASIC	208	GOTO	110	NEW	117	SAVE	207
BEEP	123	GPRINT	183	NEXT	150	SGN	177
CHAIN	124	GRAD	140	ON-GOSUB	151	SIN	177
CHR$	179	IF-THEN	141	ON-GOTO	152	SQR	178
CLEAR	126	INKEY$	171	OPEN	202	STEP	136
CLOAD	105	INPUT	142	OPEN$	204	STOP	165
CLOAD?	107	INPUT#	144	PASS	118	STR$	180
CLOSE	193	INPUT#1	195	PAUSE	153	TAN	178
CLS	127	INT	176	PI	174	TEST	120
CONSOLE	194	LEFT$	179	POINT	190	TEXT	209
CONT	108	LEN	180	PRESET	191	TO	136
COS	176	LET	147	PRINT	155	TROFF	166
CSAVE	109	LINE	187	PRINT#	157	TRON	167
CURSOR	128	LIST	111	PRINT#1	205	USING	168
DATA	131	LLIST	112/	PSET	192	VAL	180
DEG	176		196	RADIAN	159	WAIT	170
DEGREE	132	LN	176	RANDOM	160		

FLAPPY - a review

by Stephen Wilbourne

FLAPPY is a dangerous program. Once tried, the unsuspecting player will find his energy drained, his eyes sore and his mind numbed.



This program is so lethal that it should only be sold with a government health warning on the front of the package.

FLAPPY is described as a "real-time action and puzzle game". It is unlike any other computer game I have seen. It has a very simple goal: use FLAPPY, a cute yellow creature, to move a blue stone to a blue area. To do so, it is necessary to create a path by skilful use of supplied brown stones, and at the same time, avoid the two types of enemy creatures. These are unicorns which move only left and right, never up and down, and ebeelors which are frog-like creatures which move in all directions as they hunt FLAPPY.

The game appears deceptively simple. It is surprising just how clever you need to be in order to

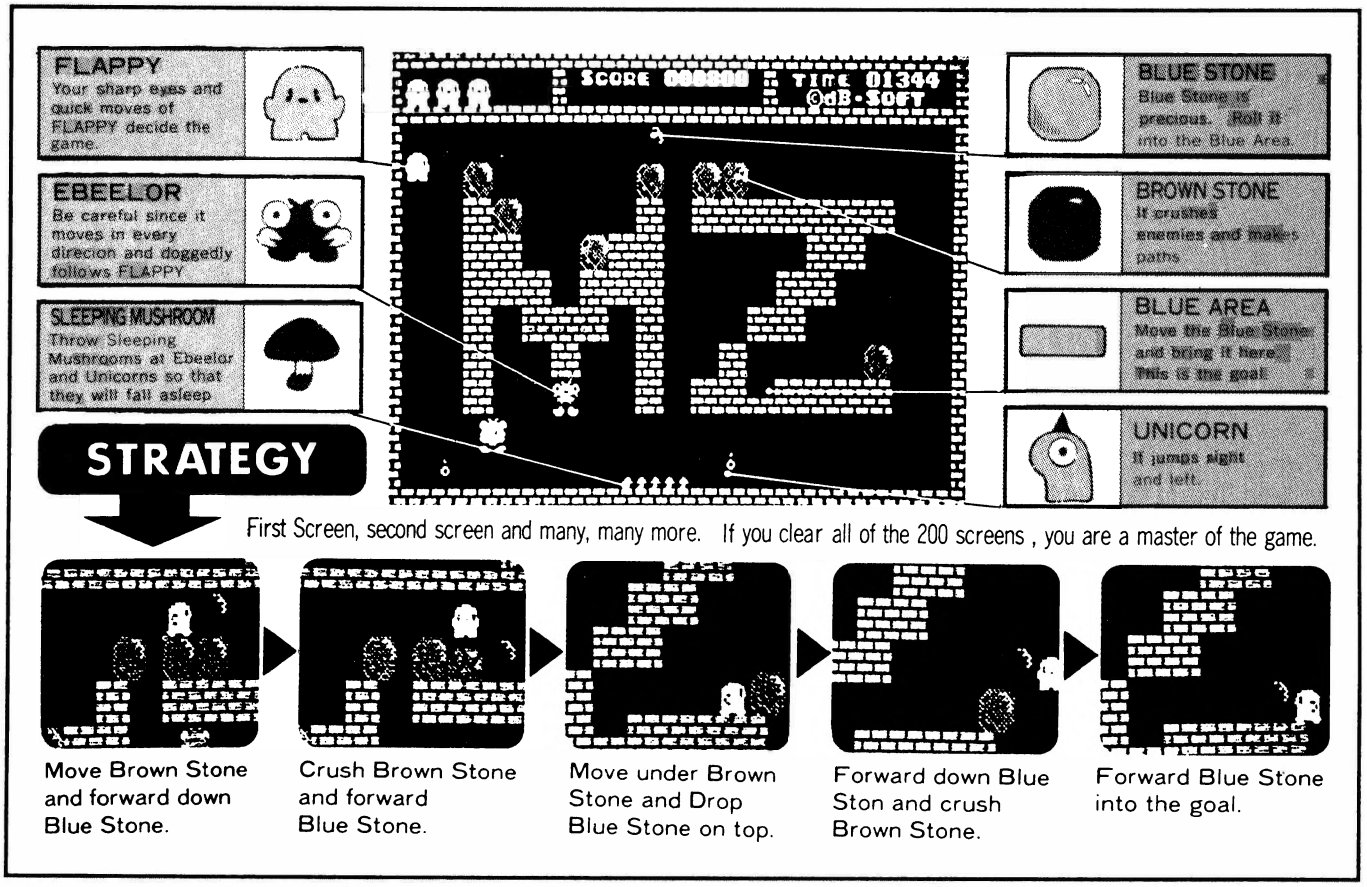
move the blue stone to its blue position. Brown stones need to be carefully used to fill holes, make bridges, crush enemies and block passages. They must be moved carefully, as they will crumble if pushed into a wall. FLAPPY is used to push the brown stones around. FLAPPY looks like a head with legs, and the designers have really put a great deal of expression into the manner in which FLAPPY walks around. You cannot help but admire this quaint little man and his seemingly tireless efforts to move stones.

FLAPPY comes with an astounding 200 playing screens! I cannot believe that anyone will ever play them all, without devoting years to this game. I have spent hours with FLAPPY - I can now get through the first five screens easily. Once, just once, I got through screen six and had a glimpse of screen seven, but I haven't been able to do that again! After every fifth screen you are given a password which can be entered next time you start playing in order to select one of the previous five screens as the screen to start on. For example, after screen five you are given a password which allows you to start playing on screen 1 or 2 or 3 or 4 or 5. I think it would have been better if the password allowed you to start on the next screen. For example, the password after screen 5 should let you start on screen 6 next time. The keys seem a bit touchy when you go to the menu to enter a password, or change the game speed. If you're not careful, the keys auto-repeat very quickly.

FLAPPY is a long program, and it seems to take forever to load from cassette. Perhaps a shorter version, with only the first twenty screens, could have been recorded on one side of the cassette for mortals like myself who are unlikely to ever get to the higher screens. Alternatively, perhaps a public-spirited magazine might one day publish the passwords for all to try.

Of the screens I have been able to play, they have each provided a fresh challenge. Each screen has required different tactics to successfully move the blue stone. If this is continued right through to the last screen, then the game would be truly amazing. Unfortunately, I doubt whether I will ever find out!

FLAPPY for the MZ-800 is produced by dB-SOFT, and distributed by Sharp. (Cassette $15.00, QD $19.00).


FLAPPY
Your sharp eyes and quick moves of FLAPPY decide the game.
EBEELOR
Be careful since it moves in every direcion and doggedly follows FLAPPY
SLEEPING MUSHROOM
Throw Sleeping Mushrooms at Ebeelor and Unicorns so that they will fall asleep
SCORE 000800
TIME 01344
©dB-SOFT
BLUE STONE
Blue Stone is precious. Roll it into the Blue Area
BROWN STONE
It crushes enemies and makes paths
BLUE AREA
Move the Blue Stone and bring it here. This is the goal.
UNICORN
It jumps right and left.
STRATEGY
First Screen, second screen and many, many more. If you clear all of the 200 screens , you are a master of the game.
Move Brown Stone and forward down Blue Stone.
Crush Brown Stone and forward Blue Stone.
Move under Brown Stone and Drop Blue Stone on top.
Forward down Blue Ston and crush Brown Stone.
Forward Blue Stone into the goal.

Bold Sir Robin - Part 2

by Philip Riley

.... the last bit!

```
2400 PRINT"YOU WALK ALONG A NARROW
EVIL SMELLING   PASSAGE. IT IS VERY
 DARK AND THE SMELL  IS TERRIBLE.":
GOTO2680
2410 YP=109:N1=1:S1=0:W1=0:E1=1:GOS
UB2720
2420 PRINTG$;" A SMALL EMPTY ROOM.
JUST LIKETHE REST OF THE DUNGEONS T
HIS IS AN EVILSMELLING PLACE WITH T
HICK GREEN SLIME   COATING ALL THE
WALLS.":GOTO2680
2430 YP=110:N1=0:S1=0:W1=1:E1=0:GOS
UB2720:IFY8=1THENS1=1:PRINT"THERE I
S AN OPEN DOOR ";G5$:GOTO2680
2440 PRINT"YOU WALK ALONG A PASSAGE
 THAT ENDS       ABRUPTLY. TO THE SO
UTH YOU FIND A LOCKEDDOOR.":GOTO268
0
2450 YP=111:N1=1:S1=0:W1=0:E1=1:GOS
UB2720
2460 PRINT"YOU WALK ALONG A SHORT C
URVING TUNNEL.  IT IS VERY NARROW A
ND EXTREMELY SMELLY.":GOTO2680
2470 YP=112:N1=1:S1=1:W1=1:E1=0:GOS
UB2720
2480 PRINT"YOU COME TO A JUNCTION I
N THE TUNNEL.    ";G4$;" YOU CAN HER
E A STRANGE      RUMBLING SOUND.":GO
TO2680
2490 YP=113:N1=0:S1=1:W1=0:E1=0:GOS
UB2720
2500 IFY7=1THENE1=1:PRINT"THERE IS
AN OPEN DOOR ";G2$:GOTO2680
2510 PRINT"A LOCKED DOOR IN THE EAS
TERN WALL OF THETUNNEL STOPS FURTHE
R PROGRESS ALONG THISPASSAGE.":GOTO
2680
2520 YP=114:PRINT"YOU HAVE WALKED I
NTO THE LAIR OF THE    BARONS DRAGO
N. THE DRAGON TAKES ONE LOOKAT YOU
AND BURNS YOU TO A CRISP WITH ITSBR
EATH OF FIRE."
2530 PRINT:PRINT"BAD LUCK!!!!!!■■■■
■■■■■■■■■■■■PERHAPS YOU WOULD LIKE
TO TRY AGAIN."
2540 GETA$
2550 IFA$="Y"THENCONSOLE:RUN
2560 IFA$="N"THENCONSOLE:CLS:END
2570 GOTO2540
2580 IF(AB=1)*(Y3=0)THENAB=0:GOTO26
30
2590 YP=115:N1=1:S1=0:W1=0:E1=1:AB=
0:GOSUB2720
2600 PRINT"YOU ARE IN A NARROW TUNN
EL THAT CURVES  OFF INTO THE GLOOM
AHEAD.":GOTO2680
2610 YP=116:N1=0:S1=0:W1=1:E1=1:GOS
UB2720
2620 PRINT"YOU WALK ALONG THE PASSA
GE AND COME TO AHALT JUST IN TIME T
O STOP YOURSELF FROM WALKING INTO A
N ACID BATH THAT STRETCHESFROM ONE
SIDE OF THE PASSAGE TO THE     OTHE
R. What fiendish devices the baron
 thinks up to guard his dungeons.":
GOTO2680
2630 IF(YP=116)*(Y3=0)THENPRINT"■YO
U HAVE STEPPED INTO THE ";IT$(25);"
. YOUDIED INSTANTLY.":GOTO2530
2640 YP=117:N1=0:S1=1:W1=1:E1=0:AB=
1:GOSUB2720
2650 PRINT"THE PASSAGE THAT YOU ARE
 WALKING ALONG  SEEMS TO BE THE WOR
ST YET. THE SMELL    ALMOST MAKES Y
OU SICK BUT YOU KEEP ON   MOVING AH
EAD ALL THE SAME.":GOTO2680
2660 YP=118:N1=1:S1=0:W1=0:E1=0:GOS
UB2720
2670 PRINT"THE PASSAGE ENDS AT A LA
RGE PRISON CELL.THE SMELL IS TERRIB
LE AND THE WALLS ARE COVERED IN THI
CK GREEN SLIME.":GOTO2680
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```
2680 PRINT"□VISIBLE OBJECTS□":S=0:F
ORT=0TO18:IFIT(T)=YPTHENPRINTIT$(T)
:S=S+1
2690 NEXT
2700 IFS=0THENPRINT"NOTHING□"
2710 GOTO120
2720 G1=G1+1:IFG1=82THENG1=62
2730 G2=G2+1:IFG2=82THENG2=62
2740 IFZ1=1THENG5=G5+1:IFG5=49THENZ
1=0
2750 IFZ1=0THENG5=G5-1:IFG5=42THENZ
1=1
2760 IFZ2=1THENG6=G6+1:IFG6=27THENZ
2=0
2770 IFZ2=0THENG6=G6-1:IFG6=22THENZ
2=1
2780 IFZ3=1THENG7=G7+1:IFG7=97THENZ
3=0
2790 IFZ3=0THENG7=G7-1:IFG7=90THENZ
3=1
2800 IFZ4=1THENG9=G9+1:IFG9=9THENZ4
=0
2810 IFZ4=0THENG9=G9-1:IFG9=1THENZ4
=1
2820 IF(G1=YP)+(G2=YP)+(G3=YP)+(G4=
YP)+(G5=YP)+(G6=YP)+(G7=YP)+(G8=YP)
+(G9=YP)THENPOKE53332,25,15,21,0,19
,5,5,0,1,0,7,21,1,18,4:TI$="000000"
:HH=1
2830 RETURN
2840 PRINTG$;" THE MAIN COURTYARD.
THE FLOORIS MADE OF COBBLESTONES AN
D THEY HAVE   OBVIOUSLY SEEN ALOT O
F USE AS THEY ARE  VERY WORN."
2850 IFYP=7THEN2880
2860 IFYP=32THEN2890
2870 GOTO2680
2880 PRINTG5$;" YOU CAN SEE THE ARC
HWAY    THAT LEADS TO THE DRAWBRIDG
E AND        PORTCULLIS.":GOTO2680
2890 PRINT"YOU CAN SEE STEPS THAT L
EAD UP TO THE   CASTLE WALL FROM HE
RE.":GOTO2680
2900 PRINTG$;" THE SMALLER INNER CO
URTYARD. THIS IS WHERE THE BARONS H
ORSES ARE KEPTAND EXERCISED. WHICH
IS OBVIOUS FROM THESMELL OF MANURE.
 I should be careful    where you t
read."
2910 IFYP=15THEN2930
2920 GOTO2680
2930 PRINTG5$;" YOU CAN JUST MAKE O
UT THE  ARCH THAT GOES UNDER THE IN
NER WINGS OF THE CASTLE.":GOTO2680
2940 PRINT:PRINT:ONYGOTO2950,0,3020
,0,430,0,3660,0,3730,0,3850,0,3430,
0,3430,0,3430,0,3430,0,3430
2950 IFU1=0THENPRINT"□YOU CAN'T GO
UP AT THE MOMENT.":GOTO120
2960 IFY5=1THEN3890
2970 IF(YP=8)+(YP=28)+(YP=11)+(YP=7
7)+(YP=62)+(YP=67)+(YP=72)THENF=F+1
2980 IFYP=26THENPRINT"YOU CLIMB THE
 CHIMNEY TO A SECRET ROOM.":F=F+1:G
OTO430
2990 IFYP=32THENF=F+2:N=N-1
3000 IFYP=90THENF=F-4:N=N-12:PRINT"
YOU CLIMB UP THE ";IT$(0):GOTO430
3010 PRINT"□YOU WALK UP THE STAIRS.
":GOTO430
3020 IFD1=0THENPRINT"□YOU CAN'T GO
DOWN AT THE MOMENT.":GOTO120
3030 IF(YP=56)+(YP=41)+(YP=86)+(YP=
87)+(YP=88)+(YP=89)+(YP=47)THENF=F-
1
3040 IFYP=58THENF=F-1:PRINT"YOU CLI
MB DOWN THE CHIMNEY.":GOTO430
3050 IFYP=81THENF=F-2:N=N+1
3060 IFYP=27THENF=F+4:N=N+12:PRINT"
YOU CLIMB DOWN THE ";IT$(0):GOTO430
3070 PRINT"□YOU WALK DOWN THE STAIR
S.":GOTO430
3080 IFZ=39THEN3710
3090 IFAA>18THENPRINT"THAT ITEM CAN
NOT BE TAKEN.":GOTO120
3100 IFIT(AA)=120THENPRINT"YOU ALRE
ADY HAVE IT.":GOTO120
3110 IF(AA=6)*(YP=88)THENPRINT"WHIC
H ONES <1A to 5A>":GOTO120
3120 IF((AA=18)+(AA=16))*(IT(AA)=YP
)THENPRINT"IT IS TOO LARGE TO CARRY
.":GOTO120
3130 IF(YP=118)*(Y1=0)*(AA=17)THENP
RINT"YOU CANT GET ";IT$(17);" UNTIL
 YOU  UNLOCK THE CELL ";IT$(19):GOT
O120
3140 IFAA=17THENPRINTIT$(17);" IS R
ATHER HEAVY TO CARRYSO SHE DECIDES
TO WALK WITH YOU.":Y2=1:IT(17)=130:
GOTO120
3150 IFYH=5THENPRINT"YOU ARE TRYING
 TO CARRY TOO MUCH.":GOTO120
3160 IF(AA=1)*(IT(1)=YP)THENY3=0
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3170 IFIT(AA)=YPTHENPRINT"YOU TAKE
THE ";IT$(AA):IT(AA)=120:YH=YH+1:GO
TO120
3180 PRINT"THAT ITEM CANNOT BE TAKE
N.":GOTO120
3190 IFIT(AA)<>120THENPRINT"YOU DON
'T HAVE IT.":GOTO120
3200 IT(AA)=YP:PRINT"YOU DROP THE "
;IT$(AA):YH=YH-1:GOTO120
3200 IT(AA)=YP:PRINT"YOU DROP THE "
;IT$(AA):YH=YH-1:GOTO120
3210 IF(YP=94)*(IT(2)=120)*(Z=5)THE
NPRINT"YOU USE THE ";IT$(2);" TO GE
T ACROSS THE    BOILING WATER.":X3=
1:GOTO120
3220 PRINT"PLEASE BE MORE SPECIFIC.
":GOTO120
3230 IF(YP=118)*(Z=41)*(IT(6)=120)*
(Y6=WK)*(Y1=0)THENPRINT"YOU UNLOCK
THE CELL DOOR.":Y1=1:GOTO430
3240 IF(YP=110)*(Z=41)+(WK<>Y6)*(YP
<>110)THENPRINT"YOU DON'T HAVE THE
RIGHT KEY":GOTO120
3250 IF(Y7=0)*(YP=113)*(IT(6)=120)*
(Z=41)THENPRINT"YOU OPEN THE DOOR."
:Y7=1:GOTO430
3260 IF((YP=118)+(YP=113))*(Z=41)*(
IT(6)<>120)THENPRINT"YOU HAVE NOTHI
NG TO UNLOCK IT WITH.":GOTO120
3270 PRINT"YOU HAVE NOTHING TO UNLO
CK.":GOTO120
3280 IF(YP=116)*(IT(1)=120)*(Y3=0)*
(Z=53)THENPRINT"YOU BRIDGE THE ";IT
$(25);" WITH THE ";IT$(1):Y3=1:IT(1
)=YP:YH=YH-1:GOTO120
3290 IF(YP=116)*(IT(1)=0)*(Y3=0)*(Z
=53)THENPRINT"YOU HAVE NOTHING TO B
RIDGE THE ";IT$(25);" WITH.":GOTO12
0
3300 PRINT"YOU HAVE NOTHING TO BRID
GE.":GOTO120
3310 IF(YP=40)*(Z=55)THENPRINT"THE
DRAWBRIDGE AND PORTCULLIS ARE BOTH
 OPERATED BY ";IT$(7);". CUT THIS "
;IT$(7);" AND YOU WILL BE ABLE TO E
SCAPE.":GOTO120
3320 IF(YP=59)*(Z=59)THENPRINT"IT L
OOKS VERY NICE.":GOTO120
3330 IF(YP=26)*(Z=21)THENPRINT"YOU
LOOK UP THE CHIMNEY AND SEE AN IRON
 LADDER ATTACHED TO IT.":GOTO120
3340 IF(YP=0)*(Z=61)THENPRINT"YOU L
OOK AT THE WALL AND NOTICE THAT IT
HAS A SMALL CRACK BETWEEN IT AND TH
E    SIDE WALLS, ROOF AND FLOOR.":G
OTO120
3350 PRINT"YOU SEE NOTHING UNUSUAL.
":GOTO120
3360 IF(YP=40)*(Y4=0)*(Z=15)*(IT(4)
=120)THENPRINT"YOU CUT THROUGH THE
ROPE WITH THE KNIFE AND THE DRAWBRI
DGE DROPS DOWN AND THE   PORTCULLIS
 IS RAISED UP INTO THE TOWER.":Y4=1
:GOTO120
3370 IF(YP=40)*(Y4=0)*(Z=15)*(IT(4)
<>120)THENPRINT"YOU HAVE NOTHING TH
AT IS SHARP ENOUGH TOCUT THIS ROPE.
":GOTO120
3380 PRINT"YOU HAVE NOTHING THAT NE
EDS CUTTING.":GOTO120
3390 IF(YP=IT(18))*(Z=37)*(Y5=0)THE
NPRINT"YOU MOUNT THE ";IT$(18);".":
Y5=1:IT(18)=130:GOTO120
3400 PRINT"YOU CAN'T DO THAT AT THE
 MOMENT.":GOTO120
3410 IF(Z=37)*(Y5=1)THENPRINT"YOU D
ISMOUNT FROM THE ";IT$(18);".":IT(1
8)=YP:Y5=0:GOTO120
3420 GOTO3400
3430 Y6=VAL(Y$):IT(6)=120:PRINT"■YO
U TAKE THE KEYS MARKED ";Y$:GOTO120
3440 IF(YP=110)*(IT(14)=120)*(Y8=0)
*(Z=57)THENPRINT"YOU PICK THE LOCK
ON THE DOOR WITH THE  ";IT$(14):Y8=
1:GOTO430
3450 IF(YP=110)*(Z=57)*(IT(14)<>120
)THENPRINT"YOU CAN'T PICK THE LOCK
AT THE MOMENT.":GOTO120
3460 GOTO3400
3470 IF(YP=106)*(X1=0)*(Z=33)THENPR
INT"YOU SEARCH THE BODY AND FIND A
";IT$(4):IT(4)=106:X1=1:GOTO430
3480 IF(YP=106)*(X1=1)*(Z=33)THENPR
INT"YOU SEARCH THE BODY BUT FIND NO
THING.":GOTO120
3490 IF(YP=59)*(Z=59)*(X2=0)THENPRI
NT"YOU SEARCH THE CUPBOARD AND FIND
 A ";IT$(5):IT(5)=59:X2=1:GOTO430
3500 IF(YP=59)*(Z=59)*(X2=1)THENPRI
NT"YOU SEARCH THE CUPBOARD BUT FIND
 NOTHING":GOTO120
3510 PRINT"YOU CAN'T SEARCH THAT.":
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GOTO120
3520 IF(IT(5)=120)*(Z=11)THENPRINT"
IT SAYS THE KEYS TO RELEASE THE PRI
NCESSARE ON RING ";WK;"A":GOTO120
3530 PRINT"YOU HAVE NOTHING TO READ
.":GOTO120
3540 IF(IT(8)=120)*(IT(7)=120)*(Z=1
)THENPRINT"YOU MAKE A ";IT$(0);" FR
OM THE ";IT$(8);" ANDTHE ";IT$(7);"
.":IT(7)=130:IT(8)=130:IT(0)=YP:X4=
1:YH=YH-1:GOTO430
3550 GOTO3400
3560 IF(YP=27)*(Z=51)THENPRINT"YOU
MOVE THE ";IT$(24);" TO REVEAL A DE
EP  DARK HOLE IN THE FLOOR BEHIND I
T. A FOULSTENCH WAFTS UP FROM THE H
OLE.":GOTO120
3570 IF(YP=38)*(Z=47)THENPRINT"YOU
MOVE THE ";IT$(22);" AND REVEAL A S
ECRET DOORWAY INTO  ANOTHER ROOM.":
X5=1:E1=1:GOTO120
3580 IF(YP=91)*(IT(3)=120)*(Z=45)*(
X6=0)THENPRINT"YOU MOVE THE HOT COA
LS TO ONE SIDE WITH THE ";IT$(3):X6
=1:GOTO120
3590 PRINT"WHAT DO YOU WANT TO MOVE
 THAT FOR.":GOTO120
3600 IF((YP=94)+(YP=116))*((Z=43)+(
Z=53))THENPRINT"YOU TRY TO JUMP THE
 OBSTACLE BUT YOU    FALL SHORT AND
 DIE INSTANTLY IN THE     TERRIBLE
LIQUID.":GOTO2530
3610 PRINT"YOU CAN'T JUMP THAT.":GO
TO120
3620 IF(YP=26)*(Z=21)THEN2980
3630 PRINT"YOU CAN'T CLIMB THAT.":G
OTO120
3640 IF(YP=46)*(IT(9)=120)*(IT(10)=
120)*(Z=41)*(X7=0)THENPRINT"YOU SMA
SH THE LOCK ON THE DOOR WITH THE HA
MMER AND CHISEL.":X7=1:W1=1:GOTO120
3650 PRINT"DON'T DE SO DESTRUCTIVE.
":GOTO120
3660 PRINT"YOU ARE CARRYING":O=0:FO
RT=0TO18:IFIT(T)=120THENPRINTIT$(T)
:O=O+1
3670 NEXT:IFO=0THENPRINT"NOTHING"
3680 GOTO120
3690 PRINT"YOU PUSH THE WALL AND IT
 SWINGS OUTWARDSLEAVING YOU WITH A
PASSAGE INTO THE     CASTLE.":X8=1:
W1=1:GOTO120
3700 PRINT"WHY DO YOU WISH TO PUSH
THAT.":GOTO120
3710 FORT=0TO18:IFYP=IT(T)THENIT(T)
=120:PRINT"YOU PICK UP THE ";IT$(T)
3720 NEXT:GOTO120
3730 GE=0:IFTI$)"000003"THENGE=GE+5
:PRINT:PRINT"YOU TRY TO DUCK INTO T
HE SHADOWS BUT THEGUARD SPOTS YOU A
ND ATTACKS.":GOTO3750
3740 HH=2:PRINT"YOU DUCK INTO THE S
HADOWS OUT OF VIEW   FROM THE GUARD
.":GOTO120
3750 GE=GE+5
3760 D1=INT(3*RND(1)+1)
3770 IFIT(11)<>120THENPRINT:PRINT"Y
OU ATTACK THE GUARD BUT YOU HAVE NO
    WEAPONS FOR DEFENCE AND YOU ARE
 KILLED  INSTANTLY.":GOTO2530
3780 PRINT"YOUR ENERGY=";SR
3790 PRINT"GUARDS ENERGY=";GE:FORT=
1TO3000:NEXT
3800 R1=INT(2*RND(1)+1):IFR1=1THEN3
830
3810 SR=SR-D1:IFSR<0THENPRINT"YOU H
AVE BEEN KILLED IN BATTLE.":GOTO253
0
3820 GOTO3760
3830 GE=GE-D1:IFGE<1THENPRINT"THE G
UARD IS DEAD.":HH=0:GOTO120
3840 GOTO3760
3850 PRINT"YOU ATTACK THE GUARD.":G
OTO3750
3860 IFY5=0THENPRINT"■YOU RUN OUT O
F THE CASTLE. BUT AS YOU   REACH TH
E FAR SIDE OF THE DRAWBRIDGE THEBAR
ONS ARCHERS FIRE AT YOU. YOU ARE
  STRUCK DOWN AND KILLED INSTANTLY.
":GOTO2530
3870 IFY2=0THENPRINT"■YOU HAVE ESCA
PED FROM THE BARONS CASTLE BUT YOU
HAVE LEFT ";IT$(17);" BEHINDYOU STU
PID LITTLE KNIGHT.":GOTO2530
3880 PRINT"■WELL DONE, YOU HAVE SAV
ED PRINCESS     GLADYS. KING CUTHB
ERT WILL CERTAINLY   GIVE YOU A LA
RGE REWARD FOR THIS BRAVE  DEED. MA
YBE PRINCESS GLADYS WILL EVEN   MAR
RY YOU.":END
3890 PRINT"YOU WILL HAVE TO GET OFF
 THE HORSE FIRST.":GOTO120
```

The pick of computers

by L. Slade Lee

Sharp computers often play an important role in commercial and research environments. This article illustrates the use of a PC-2500 for citrus research by the Department of Primary Industries.

Many of our research projects with citrus in Queensland require accurate measurements of entire yield from many individual trees. The experiments are performed on commercial orchards and the co-operating orchardists provide farm labourers to harvest the fruit. The fruit pickers carry a large false-bottomed sack slung by straps to the front of their bodies into which they can place up to 25kgs of fruit as they pick. Normally when their bag is full (which only takes a few minutes) they dump the fruit out the bottom of the sack into bulk field bins (capacity one third to half tonne) mounted on tractor-drawn trailers for transport to the packing shed.

Historically, data collection was achieved by having the pickers dump the fruit into 20 litre plastic buckets. Several buckets were required for each sack-full and much of the fruit ended up on the ground. Each bucket was then lifted onto a set of grocer scales, the weight recorded and the bucket lifted off then dumped into the bulk field bins. As you may imagine, it was a laborious exercise, not to mention the congestion caused in the limited space between rows of trees already accommodating a tractor, trailer and half a dozen pickers, by the addition of a dozen large buckets and two researchers (one weighing, the other recording). Added to this inconvenience was the delay caused to pickers as they awaited their turn to dump their load into the buckets. The situation was wholly unsatisfactory and costly in terms of labour.

Consequently we conceived a device on which the picker would stand and his total loaded weight could be recorded. Subtraction of the individual's tare weight (previously recorded) would yield the weight of fruit he had. Given that as many as six or seven pickers may all be working at one time and many bags-full come from each tree, and in fact pickers may be coming from different trees (each of which must be recorded separately) there would be an increase in the complexity of data handling (allowance had to be made for the different tare weights of the pickers). There would however be a concomitant improvement in efficiency because only one researcher would be required - there would be no fruit handling necessary as the pickers, having been weighed, would simply step onto the trailer and dump their load into the bulk bin as they would normally do. There would be no congestion and no delays for the pickers.

We are most grateful to the Perth company, TPW Pty. Ltd. (Theresia Perfection Welding) who developed a prototype weigher which was subsequently modified to become the TPW Electroweigh Mk II field weigher. The weigher is a lightweight aluminium platform (weight 9.5 kgs) with a carry handle. Data output is via a small readout unit with an LCD and a few buttons and sockets; alternatively data can be dumped in ASCII format via an RS-232 port.

The job of data processing and storage is easily handled by the Sharp PC-2500 which accepts the data from the Electroweigh via the Sharp CE-130T Level Converter. The integrated printer in the PC-2500 enables us to gain an immediate hard copy of every item of data; meanwhile data transformation and storage to RAM card is performed. At the end of a day's work we can also dump the transformed data onto tape using a portable cassette recorder. With hard copy, RAM card storage AND cassette back-up there isn't the slightest possibility of losing data due to power failure or gremlins.

Back in the office the transformed data can be dumped from the PC-2500 straight into our "big" computer for data analysis.

There were several products to choose from when we were considering a computer. The Sharp PC-2500 was selected for the following reasons:-

- the integrated printer meant that there were only two pieces of equipment in addition to the Electroweigh read-out unit. The three items (the PC-2500, the CE-130T and the Electroweigh read-out) all fit easily into a briefcase from where they can be operated in the field. A separate printer would have been a nuisance.
- the large keyboard was considered desirable for ease of operation and to reduce the likelihood of mistakes in data items being entered from keyboard.
- the price of the PC-2500 was quite competitive for the features it offered.
- exchangeable RAM cards and cassette I/O were necessary for program and data storage.
- while larger screen sizes are available in other products, a smaller screen than the PC-2500 would have been inadequate.
- it offers flexibilty of use for other applications.

The only disadvantage of the PC-2500 is its relatively small memory (even with the 16K RAM card). However, as we only require the computer to do data transformation and storage (no complex analysis is required as this is done by the "big" computer), the available memory is adequate to our needs.

The whole outfit is light and compact and can be easily carried and operated by one person in the field. The Electroweigh has been used for a full season in the field and performed excellently. The PC-2500 is about to undergo trials and will be in field use during the 1986 harvest season.

While the outfit was assembled for our particular use in citrus research we can see great potential for it in other fields of research and also for wider applications.

We acknowledge with thanks L. Slade Lee, Research Horticulturist with the Department of Primary Industries in Maryborough, Queensland for submission of this article.

The TPW Electroweigh Mk II was designed and constructed by Theresia Perfections Welding, 8-10 McIntyre Way, Kenwick, W.A. 6107, (09) 459 7333 and its electronics were designed and produced by Omnitronics, 42 Osborne Place, Stirling, W.A. 6021, (09) 445 2633.

If you are using a Sharp computer on an application a little out of the ordinary - we would like to hear about it.

Send your article, with photographs if possible, to The Editor, Sharp Focus, Suite 1, 33 The Centreway, Mt. Waverley, Vic 3149.

Wordsearch

by Terry Gill

Now you can produce your own word puzzles with this version of Wordsearch. The program requires a Printer/Plotter although can be amended quite simply for other printers.

```
10 CLS
20 REM TERRY GILL
30 MODETN:PRINT"       WORD SEARCH
"
40 PCOLOR2
50 PRINT"No OF COLUMNS";:INPUTC
60 IFC>20THENPRINT"20 MAXIMUM":GO
TO50
70 PRINT"No OF ROWS";:INPUTR
80 IFR>30THENPRINT"30 IS THE MAXI
MUM":GOTO70
90 INPUT"No OF WORDS";N
100 DIML$(C,R),W$(N),A$(26)
110 A$(1)="A":A$(2)="B":A$(3)="C"
:A$(4)="D"
120 A$(5)="E"
130 A$(6)="F"
140 A$(7)="G"
150 A$(8)="H"
160 A$(9)="I"
170 A$(10)="J"
180 A$(11)="K"
190 A$(12)="L"
200 A$(13)="M"
210 A$(14)="N"
220 A$(15)="O"
230 A$(16)="P"
240 A$(17)="Q"
250 A$(18)="R"
260 A$(19)="S"
270 A$(20)="T"
280 A$(21)="U"
290 A$(22)="V"
300 A$(23)="W"
310 A$(24)="X"
320 A$(25)="Y"
330 A$(26)="Z"
340 Y=1
350 FORI=1TOC
360 FORJ=1TOR
370 L$(I,J)="."
380 NEXTJ
390 NEXTI
400 FORK=1TON
410 PRINT"WORD   ";K
420 INPUTW$(K)
430 GOSUB610
440 NEXTK
450 REM
460 GOSUB1380
470 GOTO540
480 PRINT
490 PRINT
500 GOSUB540
510 REM
520 END
530 REM
540 FORJ=1TOR
550 FORI=1TOC
560 PLOTON:   PRINTL$(I,J)" ";
570 NEXTI
580 PRINT
590 NEXTJ:PLOTOFF
600 GOTO1460
610 REM
620 REM
```

```
630 LO=LEN(W$(K))
640 REM
650 T=1
660 IFT<100THEN690
670 PRINT"I COULD'NT FIT THEM ALL
 IN"
680 GOTO520
690 P=1
700 PO=1
710 Q=-1
720 IFRND(Y)<=.5THEN740
730 Q=1
740 QO=-1
750 IFRND(Y)<=.5THEN770
760 QO=1
770 D=2
780 IFQ<>1THEN800
790 P=0
800 IFQO<>1THEN820
810 PO=0
820 IFRND(Y)<.75THEN840
830 D=1
840 IFRND(Y)>.25THEN860
850 D=0
860 REM
870 CO=C
880 RO=R
890 IFD<>1THEN910
900 RO=R-LO
910 IFD<>0THEN930
920 CO=C-LO
930 IFD<=1THEN960
940 RO=R-LO
950 CO=C-LO
960 IFCO<>CTHEN980
970 PO=0
980 IFRO<>RTHEN1000
990 P=0
1000 Z1=(RND(Y)*RO/100+.01)*100+P
*LO
1010 Z2=(RND(Y)*CO/100+.01)*100+P
O*LO
1020 X1=INT(Z1)
1030 X2=INT(Z2)
1040 REM
1050 IFD=1THEN1270
1060 IFD=0THEN1170
1070 FORI=1TOLO
1080 IFL$(X2+(I-1)*QO,X1+(I-1)*Q)
="."THEN1100
1090 IFL$(X2+(I-1)*QO,X1+(I-1)*Q)
<>MID$(W$(K),I,1)THEN640
1100 NEXTI
1110 T=0
1120 FORI=1TOLO-1
1130 LET L$(X2+I*QO,X1+I*Q)=MID$(
W$(K),I+1,1)
1140 NEXTI
1150 L$(X2,X1)=MID$(W$(K),1,1)
1160 GOTO1360
1170 FORI=1TOLO
1180 IFL$(X2+(I-1)*QO,X1)="."THEN
1200
1190 IFL$(X2+(I-1)*QO,X1)<>MID$(W
$(K),I,1)THEN640
1200 NEXTI
1210 T=0
1220 FORI=1TOLO-1
1230 L$(X2+I*QO,X1)=MID$(W$(K),I+
1,1)
1240 NEXTI
1250 L$(X2,X1)=MID$(W$(K),1,1)
1260 GOTO1360
1270 FORI=1TOLO
1280 IFL$(X2,X1+(I-1)*Q)="."THEN1
300
1290 IFL$(X2,X1+(I-1)*Q)<>MID$(W$
(K),I,1)THEN640
1300 NEXTI
1310 T=0
1320 FORI=1TOLO-1
1330 L$(X2,X1+I*Q)=MID$(W$(K),I+1
,1)
1340 NEXTI
1350 L$(X2,X1)=MID$(W$(K),1,1)
1360 RETURN
1370 REM
1380 FORI=1TOC
1390 FORJ=1TOR
1400 IFL$(I,J)<>"."THEN1430
1410 Z1=(RND(Y)*.26+.01)*100
1420 L$(I,J)=A$(INT(Z1))
1430 NEXTJ
1440 NEXTI
1450 RETURN
1460 PRINT/P
1470 FORK=1TON
1480 PLOTON:PRINT   W$(K);"--";
1490 NEXTK
1500 PLOT OFF
1510 PLOTOFF
1520 MODETN
```

Back to Basics

This month we intended to take a look at subroutines. However, a timely article from Robin Hill expands upon the IF...THEN tutorial we published in Issue 6 last December.

Most Basic programs use the IF function which is used to compare variables, be they character strings or numerals, and allow some action to be performed depending on the result of the comparison.

If you read pages 50 to 52 of the MZ-700 Owners Manual, you will find that there are two types of comparisons:

Relational and Logical

With relational comparisons, you should be careful when comparing character strings as:

"A"<"B" and "a">"b"

because the value of "A" is 65 and "B" is 66, but the value of "a" is 161 and "b" is 154. *Sharp ASCII strikes again!*

The main problem with logical comparisons is that Basic programs published in books and magazines **not** written for the MZ-700 quite often have statements like:

IF A=B AND C=D THEN ... or
IF A=B OR C=D THEN ... or
IF A=B XOR C=D THEN ...

These are logical comparisons - Sharp Basic supports them but in a different format as follows:

IF (A=B) * (C=D) THEN ...
IF (A=B) + (C=D) THEN ...
IF (A=B) - (C=D) THEN ...

In English, the first expression reads: IF A equals B, **and** C equals D, THEN perform some function. The second reads: IF A equals B, **or** C equals D, THEN perform some function and the third: IF A equals B, and C does not equal D, **or** A does not equal B and C equals D, THEN perform some function. Another way of explaining this last function is that either expression, (A=B) or (C=D), must be true to allow the function to be performed, but the function will not be performed if both expressions are true.

This short program will demonstrate the three functions.

```
10  A=10:B=10:C=20:D=20:
    GOSUB40
20  B=55:GOSUB40
30  END
40  PRINT"A=";A;" B=";B;"
    C=";C;" D=";D
50  IF (A=B)*(C=D) THEN
    PRINT"A=B AND C=D"
60  IF (A=B)+(C=D) THEN
    PRINT"A=B OR C=D"
70  IF (A=B)-(C=D) THEN
    PRINT"A=B OR C=D BUT
    NOT BOTH"
80  PRINT
90  RETURN
```

When the program is executed, two lots of three lines will be printed on the screen.

The first line of the three is the value of the variables A to D, the next two will be the results of lines 50 and 60. This is because both of the expressions are true. In the second group, the second and third lines will be the results of lines 60 and 70. This is because one of the two expressions is not true.

It can be seen from the above program that the AND expression (A=B)*(C=D) will only produce a result when both conditions are true. The OR expression (A=B)+(C=D) will produce a result when any of the expressions are true. The XOR expression (A=B)-(C=D) will produce a result when only one of the expressions is true, hence the name Exclusive OR.

Other contributions excepted, we will endeavour next month to study a program written using only subroutines and examine what it is doing in close detail.

Installing Wordstar

If you are looking for a low cost Word Processor without sacrificing features you may consider combining the power of the MZ-800 with the full features of Wordstar. This article describes in detail the procedures for installing the package on the MZ-800.

Before launching into the procedures, a couple of points should first be made.

If a typewriter connected to the RS232 interface (MZ1E24) is to be used as the printer, the correct RS232 parameters must be set using the SETUP utility. The baud rate is selected using the jumper blocks on the board (refer to the MZ1E24 manual for further details).

Note also that the RS232 port will need to be defined as the primary list device, again using the SETUP utility.

TERMINAL INSTALLATION

Run the program WINSTALL. If the Wordstar disc is in the MZ3500 or IBM format, transfer across to the MZ-800 format as explained in Issue 7 of Sharp Focus (Page 11). WINSTALL provides a great deal of information as it runs. If you are unfamiliar with this program, pay close attention to the messages provided.

Key in the responses listed below in answer to each prompt.

Prompt	**Response**
A>	WINSTALL
Product	WS
Disk Drive	<RETURN>
File to Install	<RETURN>
File for Installed Wordstar	<RETURN>
If correct	<RETURN>
INSTALLATION MENU	
Enter letter of Choice	B
TERMINAL INSTALLATION MENU	
Enter letter of Choice	A
Terminal name	SHARP MZ800
Screen Height	24
Screen Width	80
Cursor Positioning	
- Byte 1	,1B
- Byte 2	,3D
- Byte 3	,
Char. Between line and Column	<EMPTY>
Char. After line and Column	<EMPTY>
Column Before line	No
Character for line 1	20
Character for line 2	20
Type of Code	Binary
TERMINAL START-UP	
- Byte 1	,1B
- Byte 2	,71
- Byte 3	,1B
- Byte 4	,77
- Byte 5	,1B
- Byte 6	,43
- Byte 7	,1B
- Byte 8	,2C
TERMINAL EXIT	
- Byte 1	,1B
- Byte 2	,5B
- Byte 3	,32
- Byte 4	,4A
- Byte 5	,1B
- Byte 6	,5B
- Byte 7	,3B
- Byte 8	,48
HIGHLIGHTING ON	
- Byte 1	,1B
- Byte 2	,5B
- Byte 3	,37

- Byte 4	,6D
- Byte 5	.

HIGHLIGHTING OFF

- Byte 1	,1B
- Byte 2	,5B
- Byte 3	,30
- Byte 4	,6D
- Byte 5	.

Erase to End of line	<EMPTY>
Delete line	<EMPTY>
Insert line	<EMPTY>
Last Character Scroll	YES

TERMINAL INSTALLATION MENU

- Enter letter of Choice	X

WINSTALL now returns to the main Installation Menu.

PRINTER INSTALLATION

Installation details for a Sharp ZX-410 or ZX-330 typewriter are provided below. For other printers, select a standard type from the printer menu or consult your printer's manual for the required parameters.

Prompt		**ZX-410**
From installation menu		D
From printer install menu		B
Printer name		Sharp ZX410
Printer initialisation		<EMPTY>
Printer de-initialisation		<EMPTY>
Overprinting		B (backspacing standard)
Backspacing sequence		8
Bold facing		3
Comm protocol		No protocol
Printer Driver		A
Return Line feed	Byte 1	,0D
	Byte 2	,0A
Return without line feed		,0D
Return and half line feed		<EMPTY>
From printer menu		0
No. 1 User Function	Byte 1	,1B
	Byte 2	,55
No. 2 User Function	Byte 1	,1B
	Byte 2	,4F
No. 3 User Function	Byte 1	,1B
	Byte 2	,4A
No. 4 User Function	Byte 1	,1B
	Byte 2	,4B

USER FUNCTIONS

Wordstar enables the user to define 4 special functions.

These functions are obtained by placing the appropriate control codes within a document. These control codes, along with the results they produce, follows:

ZX-410 ACTION	**Control Code**
Bold toggle	^PQ
Expanded print toggle	^PW
Superscript on or Subscript off	^PE
Subscript on or Superscript off	^PR

KEY ASSIGNMENTS

Key assignments (cursor, function and special purpose) are made using the SETUP facility. The SETUP utility should therefore be copied onto the disc which is to contain the installed Wordstar using the command:

PIP B:=A:SETUP.COM

1. Run SETUP
2. Select Option No. 9 USER DEFINABLE KEY (Refer Pages 37 and 38 of the P-CP/M Manual). Keys should be assigned as follows:

KEY	**Assign.**	**FUNCTION**
Blank		
Shift & Blank		
Tab	^I	Tab
Shift & Tab	^I	Tab
INST	^V	Insert ON/OFF
Shift & INST	^R	Top of file
DEL	^G	Delete Character
Shift & DEL	^QC	Bottom of file
↑	^E	Up one line
Shift & ↑	^R	Up one screen
↓	^X	Down one line
Shift & ↓	^C	Down one screen
→	^D	Right one character
Shift & →	^D	Right one character
←	^S	Left one character
Shift & ←	^S	Left one character

Note that control characters are displayed in inverse video. Assign 4 of the most commonly used control sequences to function keys F1 to F4. Repeat for F5 to F8, F9 to F12 and F13 to F16.

3. Save these key assignments permanently to the disk by selecting option no. 1 from the END OF SETUP menu.

AUTO EXECUTION

If desired, the disc can be configured so that Wordstar automatically loads up when the system is booted.

1. Run SETUP.
2. Select option no. 1 AUTO EXECUTE FILE (refer to page 29 of the P-CP/M Manual).
3. Set Auto Execute to ON
4. Insert the program name WS on the command line.
5. Save these parameters permanently to the disk as described above.

USER GROUP INFORMATION

Each month we will provide as much space as is necessary to promote existing Sharp User groups and help establish new ones. Our aim is to publish the Names, Suburbs and Telephone numbers of people who are, or would like to be, contact points for specific groups.

Readers, who may otherwise not be aware of a group in their locality, will get in touch with the contacts. Similarly, any enquiries we receive can be referred to the contact points.

In order to take advantage of this opportunity to advertise the existence of your group free of charge (or to start a new group), all interested parties are invited to submit the following details:

Name of Group, Association or Society
Address of regular meeting place (include Post Code)
Date of each regular meeting (eg. 1st Tuesday each month)
Time of regular meetings (eg. 8.00p.m. to 10.30p.m.)
Activities - including the range of equipment normally used
Special interest sub-groups (if any)
Name, Address and Telephone number of contact points

Naturally there are deadlines for each edition of SHARP FOCUS. Without making any promises, any details received by the 10th of each month will normally be included in the next months publication.

Please send your submissions directly to The Editor, SHARP FOCUS, Suite 1, 33 The Centreway, Mt. Waverley, Victoria 3149.

Established Groups

WESTERN AUSTRALIA

WA Pocket Computer Club and MZ User Group

Venue: Exhibition Hall, Rockeby Road, Subiaco.
Date: Every second Thursday of each month.
Time: 7.30 - 10.00. The club consists of pocket computer owners (80%) and MZ-700 owners (20%).
Contact: Stuart Bromley (09) 277 7477

SOUTH AUSTRALIA

The Adelaide Sharp Computer Club

Venue: 49 Oxford Terrace, Unley
Date: Every second Wednesday of each month.
Time: From 7.00 p.m. onwards. Mainly MZ-700 owners plus a few pockets.
Contact: Wayne Edge (08) 386 1179

NEW SOUTH WALES

Pocket Computer Users' Club

Venue: Woodstock Community Centre, Church St., Burwood
Date: The first Wednesday of each month and the following Saturday (except for January).
Time: From 7.30 on Wednesdays or 2.00 on Saturdays. For anyone interested in pocket computers whatever the brand.
Contact: George Antonijevic (02) 683 4296

VICTORIA

Sharp Computer Users' Association

Venue: Burwood Heights Primary School, Mahoney's Rd., East Burwood.
Date: The second Friday of each month.
Time: From 7.30 p.m. onwards. Often with guest speakers followed by special interest groups for Graphics, Programming and Games.
Contact: Arthur Harris (03) 233 4661

Geelong Sharp User Group

Venue: YMCA, 78 Yarra Street, Geelong.
Date: Twice a month - the second Monday is a workshop and the last Monday is a general meeting.
Time: 7.00 p.m to 9.30 p.m. Meetings normally cover the MZ series only.
Contact: John Carassellos (052) 91271 PO Box 936, Geelong, 3220

Contact points for new groups

QUEENSLAND
Kev Stow of Bundama has offered to act as a contact point for a group in his area. Interested parties please ring (07) 282 4312.
Also in Queensland, Wayne Lukey advises that he has obtained discounts from local shops for members of the Brisbane Sharp User Group. Contact Wayne on (07) 395 2649.

VICTORIA
Anthony Saliba in Rosebud wishes to organise a group for MZ-700 owners. He can be contacted after 4.00 p.m. on (059) 863024.

SHARP FOCUS
- some inside information

The magazine has been produced for current and impending Sharp users, and will naturally rely quite considerably upon contributions received from 'the field'.

We welcome submissions from all quarters, be they from novices or experienced users, and we will pay for any item published.

LETTERS - whether a hint, tip, moan or question, it doesn't matter - a payment of $5.00 will be made for those published.

CARTOONS - to all budding da Vinci's whose creation appears in the magazine, we will pay $5.00.

PROGRAMS - these will attract a rate of $10.00 per published page. However, we must insist that each program is submitted on a disc or tape (preferably with a listing), and a narrative describing the objectives of the program, how it works, running instructions and any other relevant information.

We will return submissions if specifically requested to do so only if a stamped and return addressed envelope (or padded bag) of suitable proportions is provided.

ADVERTISERS - we have rates for single or multiple insertions which can be obtained by contacting the address below.

All correspondence should be addressed to:

The Editor, SHARP FOCUS
Suite 1, 33 The Centreway, Blackburn Road
Mt. Waverley, Vic 3149 Tel: (03) 232 7055

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